

IN THE CLAIMS

Please amend the claims as follows.

For the Examiner's convenience, a list of all claims is included below.

RECEIVED

MAR 02 2004

Technology Center 2600

-
1. (Currently amended) A method to train image classification, comprising:
- measuring noise in a first image; and (MEDIAN FILTER)
- training a classification model from the noise to classify a second image as a natural image versus an artificial image from the noise.
2. (Original) The method of claim 1, wherein measuring noise further comprises:
- generating a noise-reduced third image from the first image;
- determining the difference between the first image and the third image; and
- aggregating the difference into a noise feature vector, and
- wherein training a classification model from the noise further comprises:
- training a classification model from the noise feature vector.
3. (Currently Amended) The method of claim 1, wherein generating a the noise-reduced third image further comprises:
- applying a median filter to the first image.

4. (Currently Amended) The method of claim 1, wherein generating a the noise-reduced third image further comprises:

applying a Gaussian filter to the first image.

5. (Currently Amended) The method of claim 1, wherein generating a the noise-reduced third image further comprises:

applying a Wiener filter to the first image.

6. (Original) The method of claim 1, wherein the first image further comprises a frame in a video stream.

7. (Currently Amended) A method to train image classification, comprising:

generating a feature vector from an image; and

training a classification model to classify a second image as a slide image versus a comic image, from the feature vector, wherein the feature vector further comprises at least one feature of an image selected from the group consisting of at least one text block feature of the image, at least one edge feature of the image, and at least one aspect ratio of the image.

8. (Original) The method of claim 7, wherein generating a feature vector from an image further comprises:

generating an aggregated feature vector from an image.

9. (Canceled)

10. (Original) The method of claim 7, wherein the image further comprises a frame in a video stream.

11. (Currently Amended) A method to classify an image as a slide image versus a comic image, comprising:

receiving a feature vector of the image, wherein the feature vector is generated from at least one feature of an image selected from the group consisting of at least one text block feature of the image, at least one edge feature of the image, and at least one aspect ratio of the image;

classifying the image as slide image versus comic image, from the feature vector; and
generating the classification of the image.

12. (Original) The method of claim 11, wherein the classification is performed on a set of video frames of a video sequence, and the most likely classification result emerging out of the classification results of the individual frames is taken as the class of the video sequence.

13. (Canceled)

14. (Currently Amended) A method to classify an image as natural image versus artificial image, further comprising:

receiving a feature vector of the image, wherein the feature vector comprises one or more of a noise vector and a sharpness vector;

classifying the image as natural image versus artificial image, from the feature vector;
and
generating the classification of the image.

15. (Original) The method of claim 14, wherein the classification is performed on a set of video frames of a video sequence, and the most likely classification result emerging out of the classification results of the individual frames is taken as the class of the video sequence.

16-17 (Canceled)

18. (Currently Amended) An image classification system comprising:
a feature extraction component, extracting a feature that distinguishes an image a frame in a video stream between a naturally-looking image versus an artificially-looking image; and
a training system, operably coupled to the feature extraction component.

19. (Canceled)

20. (Original) The system of claim 18, wherein the classification is performed on a set of video frames of a video sequence, and the most likely classification result emerging out of the classification results of the individual frames is taken as the class of the video sequence.

21. (Currently Amended) A system to classify an image comprising:
a processor;
a storage device coupled to the processor;
software means operative on the processor to train classification of at least one of images as either a natural image or an artificial image, wherein the software means further comprises a generator of a noise vector of each of the at least one images.

22. (Original) The system of claim 21, wherein the at least one image further comprises at least one frame in a video stream.

23. (Canceled)

24. (Currently Amended) A system to classify an image, comprising:
a processor;
a storage device coupled to the processor;
software means operative on the processor to train classification of at least one image as either a slide image or an comic image, wherein the software means further comprises a generator of a feature vector from at least one feature of an image selected from the group consisting of at least one text block feature of the image, and at least one edge feature of the image, and at least one aspect ratio of the image.

25. (Original) The system of claim 24, wherein the at least one image further comprises at least one frame in a video stream.

26. (Canceled)

27. (Currently Amended) A system to classify an image, comprising:

a processor;

a storage device coupled to the processor; and

software means operative on the processor to classify an image as either a natural image or an artificial image;

wherein the software means further comprises a generator of a noise vector of the image.

28. (Original) The system of claim 27, wherein the image further comprises a frame in a video stream.

29. (Canceled)

30. (Currently Amended) A system to classify an image, comprising:

a processor;

a storage device coupled to the processor; and

software means operative on the processor to classify an image as either a slide image or an comic image;

wherein the software means further comprises a generator of a feature vector from at least one feature of an image selected from the group consisting of at least one text block feature of the image, at least one edge feature of the image, and at least one aspect ratio of the image.

31. (Original) The system of claim 30, wherein the image further comprises a frame in a video stream.

32. (Canceled)

33. (Currently Amended) A computer-readable medium having computer-executable instructions to cause a computer to perform a method comprising:

generating a feature vector from a first image; and

training a classification model to classify a second image as a natural image versus an artificial image, from the feature vector;

wherein the feature vector is one or more of a noise vector and an edge-sharpness vector.

34. (Original) The computer-readable medium of claim 33, wherein the first image further comprises a frame in a video stream.

35-36 (Canceled)

37. (Currently Amended) A computer-readable medium having computer-executable instructions to cause a computer to perform a method comprising:

generating a feature vector from a first image; and

training a classification model to classify a second image as a slide image versus a comic image, from the feature vector, wherein the feature vector is generated from at least one feature

of an image selected from the group consisting of at least one text block feature of the image, at least one edge feature of the image, and at least one aspect ratio of the image.

38. (Original) The computer-readable medium of claim 37, wherein the first image further comprises a frame in a video stream.

39. (Canceled)

40. (Currently Amended) A computer-readable medium having computer-executable instructions to cause a computer to perform a method comprising:

41 receiving a feature vector of the image, wherein the feature vector is generated from at least one feature of an image selected from the group consisting of at least one text block feature of the image, at least one edge feature of the image, and at least one aspect ratio of the image;

classifying the image as slide image versus comic image, from the feature vector; and
generating the classification of the image.

41. (Original) The computer-readable medium of claim 40, wherein the classification is performed on a set of video frames of a video sequence, and the most likely classification result emerging out of the classification results of the individual frames is taken as the class of the video sequence.

42. (Canceled)

43. (Currently Amended) A computer-readable medium having computer-executable instructions to cause a computer to perform a method comprising:
receiving a feature vector of the image, wherein the feature vector is one or more of a noise vector and an edge-sharpness vector;

classifying the image as natural image versus an artificial image, from the feature vector;

and

generating the classification of the image.

44. (Currently Amended) The computer-readable medium of claim [[42]] 43, wherein the classification is performed on a set of video frames of a video sequence, and the most likely classification result emerging out of the classification results of the individual frames is taken as the class of the video sequence.

45. (Currently Amended) An apparatus to classify at least one image, comprising:
a processor;
a storage device coupled to the processor; and
a software component operative on the processor to train classification of at least one image as either a natural image or an artificial image, wherein the software component further comprises a generator of a noise vector of each of the at least one image.

46. (Currently Amended) The apparatus of claim [[44]] 45, wherein the at least one image further comprises at least one frame in a video stream.

47. (Canceled)

48. (Currently Amended) An apparatus to classify at least one image, comprising:

a processor;

a storage device coupled to the processor;

a software component operative on the processor to train classification of at least one image as either a slide image or an comic image, wherein the software component further comprising a generator of a feature vector from at least one feature of an image selected from the group consisting of at least one text block feature of the image, at least one edge feature of the image, and at least one aspect ratio of the image.

49. (Currently Amended) The apparatus of claim [[47]] 48, wherein the at least one image further comprises at least one frame in a video stream.

50. (Canceled)

51. (Currently Amended) An apparatus to classify an image, comprising:

a processor;

a storage device coupled to the processor; and

a software component operative on the processor to classify an image as either a natural image or an artificial image, wherein the software component further comprises a feature vector generator to generate of one or more of a noise vector of the image and a edge-sharpness vector of the image.

52. (Original) The apparatus of claim 51, wherein the classifying is performed on a set of video frames of a video sequence, and the most likely classification result emerging out the classification results of the individual frames is taken as the class of the video sequence.

53-54 (Canceled)

55. (Currently Amended) An apparatus to classify an image, comprising:

a processor;

a storage device coupled to the processor; and

91 a software component operative on the processor to classify an image as either a slide image or an comic image, wherein the software component further comprising a generator of a feature vector from at least one feature of an image selected from the group consisting of at least one text block feature of the image, at least one edge feature of the image, and at least one aspect ratio of the image.

56. (Original) The apparatus of claim 55, wherein the classifying is performed on a set of video frames of a video sequence, and the most likely classification result emerging out the classification results of the individual frames is taken as the class of the video sequence.

57. (Canceled)

58. (Original) A method to train image classification, comprising:
measuring sharpness in a first image; and
training a classification model from the sharpness, to classify a second image as a natural image versus an artificial image, from sharpness.
59. (Original) The method of claim 58, wherein measuring sharpness further comprises:
generating a blurred third image from the first image;
determining the difference between the first image and the third image; and
aggregating the difference into a sharpness feature vector, and
wherein training a classification model from the sharpness feature vector further comprises:
training a classification model from the sharpness feature vector.
60. (Original) The method of claim 58, wherein generating a blurred third image from a first image further comprises:
applying a Gaussian filter to the first image.
61. (Original) The method of claim 58, wherein the first image further comprises a frame in a video stream.
62. (Original) The method of claim 58, wherein the first image further comprises all frames in a video stream.